

# The Next Frontier in Digital and AI Transformations



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# The Next Frontier in Digital and AI Transformations

**Philipp Gerbert, Jan-Hinnerk Mohr, and Michael Spira**

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## AT A GLANCE

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Companies are starting to realize that winning the upcoming battle for supremacy in digital and artificial intelligence (AI) is different from past digital transformations.

### **ADOPTION OF AI AT SCALE**

Moving beyond pilots in AI requires much larger changes to operating models and skills than traditional digital and big data programs.

### **SHIFTING VALUE POOLS**

AI will trigger a shift in value pools and further blur industry boundaries.

### **FROM COMPETITIVE ADVANTAGE TOWARD DIGITAL SUPREMACY**

Even in traditional industries, the competitive battle is shifting toward the fight for outright digital supremacy, where laggards will face existential threats.

### **WINNING IN THE AGE OF DIGITAL AND AI**

While the terrain is uncertain, resilient methods exist for how to design and implement the roadmap, fund the journey, and build capabilities.

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**IS YOUR COMPANY TRANSFORMING** into a butterfly, or is it just training to be a faster caterpillar?

That metaphor—coined or at least popularized by George Westerman, principal research scientist at the MIT Initiative on the Digital Economy—captures the challenges of digitization. In other words, has your digital program actually been transformational or merely incremental?

To explore this question, we interviewed more than 20 executives at companies with major digital programs and distilled the core themes of those conversations. Overall, executives seem proud of their achievements but wish they had begun earlier and moved faster. They recognize, however, that going forward the stakes are rising significantly, in two specific ways:

- The adoption of what we call AI@scale introduces much larger changes in operating models and skills than did traditional digital and big data programs.
- As value pools shift in all industries, a fierce fight not only for competitive advantage but also for outright digital supremacy is under way, with the future of entire companies at stake.

To offer a glimpse of this future, we provide examples of leading companies in several industries that are moving aggressively to build a stronghold based on digital and AI. We then offer guidance on how companies can compete—how they can take off and fly rather than merely crawl faster.

## Where Most Companies Stand Today

The first wave of digital transformation increased reach and customization, improved processes, and boosted productivity, while also starting to systematically incorporate big data into workflows. Companies focused on creating the right context for digital to take root. They established strong ambitions and buy-in from senior leaders and improved the underlying IT and data infrastructure. They also worked on developing skills and creating a receptive culture, while embracing an ecosystem approach to digital and AI. Finally, they relentlessly focused on speed. (For highlights from our conversations with 20 executives, see Exhibit 1.)

**Even in traditional industries, aspirations are high.** If there was a single overarching theme in our conversations with executives, it was the desire to succeed in digital

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As value pools shift in all industries, a fierce fight not only for competitive advantage but also for outright digital supremacy is under way.

## EXHIBIT 1 | Lessons Learned from Senior Executives on Digital Transformation

Digital and AI aspirations are high, even in traditional industries



“The leaders of the energy industry of tomorrow will be those companies that master analytics and are quick to utilize digital tools.”

Torbjørn Folgerø  
Chief Digital officer of Equinor



**CEO support is necessary but insufficient**

Ensure other senior leaders are on board, too.



**In IT, applications before infrastructure**

Launch applications and services before optimizing infrastructure.



**It takes talent, technical skills, and culture**

Recruit creatively, build skills, and establish an agile culture.



**It often takes an ecosystem, too**

Shape ecosystems to access essential data and technology.



**Speed wins**

Stay paranoid.

Sources: BCG interviews and analysis.

and AI by developing new offerings and changing their companies' business models. For example, RBL Bank has launched India's first profitable open banking initiative. By opening its APIs to the public, RBL is allowing other companies to develop innovative services for the bank's customers. We see this trend in other industries, too. "The leaders of the energy industry of tomorrow will be those companies that master analytics and are quick to utilize digital tools," says Torbjørn Folgerø, the senior vice president and chief digital officer of the Norwegian energy company Equinor. "Equinor is investing in digital to be one of those leaders." These aspirations even apply to the public sector. The Australian Department of Human Services is looking to find ways to use digital tools and predictive data analytics to prevent people from facing financial ruin.

**CEO support is necessary but insufficient.** Digital transformations are too long and arduous to succeed without full CEO support. But they also require support from the executives who control budgets, personnel decisions, and day-to-day priorities. Despite strong backing from the CEO, one executive attributed his company's slow start to lukewarm support from executives who controlled valuable resources. But at another company, an industrial goods conglomerate, leaders created commitment by allowing affiliate companies to develop their own digital programs with a sufficient level of autonomy. Now the company is starting to combine these thriving initiatives into a comprehensive program.

**In IT, applications come before infrastructure.** Digital transformation cannot succeed without an IT and data overhaul: many companies have invested heavily. For example, French insurer Malakoff Médéric Humanis started with an on-premise centralized data lake and is now shifting to a cloud-based infrastructure; the Belgium telecom operator Proximus created a microservices-oriented infrastructure; and Equinor has implemented a cloud-based analytics platform.

But even if companies have not perfected their data lake or other advanced IT architecture, they should still get started on building applications and services—although the implementation may be inelegant and not run in real time. That way they can begin reaping at least some benefits early. This approach provides focus and momentum, while avoiding often drawn-out and disappointing system rollouts. “We came late to the importance of data,” one executive said. “We did a huge IT transformation without paying enough attention to data and thus created lots of waste and inefficiency.” If this company had started instead by building applications, it would have had a simpler time setting priorities within data management. It is also worth noting that while IT is critical, traditional IT departments are rarely a hot spot of digital talent. Many must undergo their own digital transformation before they can properly serve the company.

**It takes talent, technical skills, and culture.** Companies are working diligently on people issues ranging from developing technical skills to forming partnerships to access talent. Proximus is tapping into new talent sources through a network of universities, coding schools, and start-ups as well as through acquisitions, while Koç, a Turkish conglomerate, has founded a training center, Koç Digital Academy, and allocates time and incentives for employees to educate themselves.

Many companies are finding it challenging to hire the talent to feed their ambitions. Braskem, a global petrochemical firm, has created a digital center of excellence but is still searching for enough data scientists to work in the center. While the German rail operator Deutsche Bahn has hired a critical mass of data scientists, the company aims to hire even more talent in order to compete in mobility with major tech firms. Systems engineers, who are responsible for developing fast, secure, and high-performing systems, are even harder to hire. At Caixa, the leading savings-and-loan institution in Brazil, hiring top digital talent remains a challenge. “As a government-owned company, we need to go through a highly regulated hiring process not really attuned to the digital generation,” says Rodrigo Evangelista de Castro, leader of digital strategy and governance. While innovative and leading edge in many digital areas, Caixa could achieve even more with a more open hiring process.

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Many companies are finding it challenging to hire the talent to feed their ambitions. Systems engineers are especially hard to find.

Creating a receptive culture for change is yet another challenge. Companies such as Airbus, RBL Bank, and Proximus are attempting to instill a culture of collaboration across the entire workforce. By paying special attention to fostering collaboration between technical and business people, these companies are “turning analytical models into hard cash,” in the words of Catherine Deltenre, the head of strategy at Proximus. Agile programs are often at the core of many of these culture change efforts, binding together functional and digital know-how within a wrapper of iteration, speed, and flexibility.

**It often takes an ecosystem, too.** Increasingly, companies will need to adopt an open innovation and ecosystem approach to acquire the data, technologies, and services they need. A prime example is Airbus’s Skywise digital aviation platform. Airlines and aircraft suppliers that sign up for Skywise have access to more data than is available in their internal systems, and more data often translates into better results. Skywise’s predictive maintenance service, for example, can improve performance, safety, and revenues.

**Speed wins.** All of the executives we spoke with are concerned—even paranoid—about speed. “It’s not the big that eat the small; it’s the fast that eat the slow”—the title of a business book from the early 2000s—has become the mantra for digital programs. For instance, Phillip Tetteroo, the vice president of digital programs global brands at adidas, wants to collapse development time at the shoe and apparel maker by fundamentally rethinking existing processes. “What I am trying to avoid is to digitize what we do today, because we need to digitize instead how we work tomorrow,” he says.

When we asked executives what they might have done differently to get ahead in digital, they wished they had started sooner and moved faster. Few of them suggested structural changes to the programs themselves. But in the future, things will look different. Speed and timing alone won’t be enough.

## The Next Wave: AI@Scale and the Fight for Digital Supremacy

In our interviews, executives suggested that digital and AI transformations are at a critical moment. Rather than more of the same, they expect two fundamental shifts.

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“AI is the next frontier, and some companies won’t make it.”

**The rise of AI@scale.** While big data and analytics are already helping to generate the first wave of digital transformations, full-blown AI will drive the second. “AI is the next frontier, and some companies won’t make it,” says Görkem Köseoğlu, the global head of robotics and AI at Dutch banking company ING. He believes that AI and changes in customer behavior will fundamentally disrupt the financial industry. Other executives also cited automotive and health care as industries that will experience large shifts in value pools and the nature of competition. (See “[Competing in the Age of Artificial Intelligence](#),” BCG article, January 2017.)

Companies are starting to gather and process data in novel ways, making use of AI’s ability to tap into the large pool of unstructured knowledge in images, videos, text, and machine data generated through the Internet of Things.

Armed with this data, companies can start to rely on AI. “AI brings much more radical changes than digital, because AI systems can make decisions and take action,” says adidas’s Tetteroo. At Volkswagen, for example, AI and machine learning are viewed as disruptive technologies that are being deeply engrained into all functions, says Johann Jungwirth, executive vice president.

Suddenly, we are talking butterflies, not faster caterpillars. Many companies, for example, are relying on AI-enabled processes to create new products and services. But this shift is not easy. As Bertrand Bodson, the chief digital officer of Novartis, says, “Having projects is of course important, but you also require the right tools and processes to really have an impact at scale.” When Novartis built its physical control tower to monitor more than 500 clinical trials in real time to bring medicines faster to market, it required a fundamental shift of its operating model. The company colocated different internal teams; created a new platform to connect formerly disparate datasets; and redefined established practices, among other things.



This maturation from projects to processes requires moving toward AI@scale. As pioneers across industries strive to scale AI, they are discovering that it is deceptively easy to launch AI pilots and achieve powerful results—but fiendishly hard to achieve the same benefits at scale. We call this the AI paradox. Isolated use cases can sputter and grind to a halt when interacting at scale unless companies transform their operating models. (See “[The Big Leap Toward AI at Scale](#),” BCG article, June 2018.) Among the companies whose executives we interviewed, Daimler was one of the few that have already embraced the challenge of reaching the full potential of AI.

**The fight for digital supremacy.** If operational and cultural issues have dominated recent transformations, strategy will play a much larger role in the future. Companies are starting to move beyond operational improvement toward building decisive and enduring competitive advantage. With industries in flux, digital becoming ubiquitous, AI capable of reaching scale, and the gap between leaders and laggards widening, the time is ripe for this leap. (See “[Artificial Intelligence in Business Gets Real](#),” *MIT Sloan Management Review* article coauthored by BCG, September 2018.) Companies that make the leap will achieve “digital supremacy,” a quantum jump in capability that threatens the existence of competitors.

To provide a sense of the richness of the patterns emerging, Exhibit 2 depicts a range of ambition and aggression by companies across several industries. Media—especially such companies as Netflix and its counterpart in China, iQiyi—and retail—especially Amazon and Alibaba—are in advanced stages of making this leap. Companies in both industries can precisely measure customer preferences through their frequent purchases. AI is penetrating more processes, allowing these companies to provide highly personalized offerings at the right time and in the right context. If other media and retail companies do not strategically address these existential threats by Netflix, iQiyi, Amazon, Alibaba, and their ilk, they are doomed.

The automotive and broader mobility industries are at an earlier stage. Outside innovators, such as Nvidia, are taking advantage of advances in AI to take self-driving vehicles to the next level. Elsewhere, leading companies—such as China’s Ping An in insurance and Russia’s Sberbank in banking—are finding opportunities in adjacent industries as part of the new digital and AI journeys. For example, both Ping An and Sberbank have innovatively entered health care. Ping An is creating unstaffed Good Doctor clinics in which patients chat with an AI bot about their symptoms. The bot passes along this medical information to a doctor who creates a treatment plan and writes prescriptions. The insurer wants to build hundreds of thousands of these clinics, which are the size of a large telephone booth. Taking a different approach, Sberbank purchased DocDoc, an online platform that connects patients with medical providers and clinics.

Typically, in this fight for digital supremacy, companies focus first on revenue-generating opportunities and later on efficiency improvements. As Britta Fünfstück, the former executive committee member of Clariant, said in the *MIT Sloan Management Review* article, “If you were late with a new business model, somebody else will have driven it and you will have lost your chance forever.” Efficiency gains, on the other hand, will always be there.

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Companies are starting to move beyond operational improvement toward building decisive and enduring competitive advantage.

## EXHIBIT 2 | Companies Seeking Competitive Supremacy with Digital and AI



**Sberbank** addresses unmet customer needs in adjacent industries by creating technology-enabled platforms for real estate, health care, and other services.



**Ping An** expands its smart health ecosystem by connecting patients, hospitals, and insurers.



**Netflix** creates content based on customer preferences, leveraging its real-time access to customer behavior to increase ROI and lower risk.



**Uber** intelligently matches supply and demand to provide more convenient, faster, and price-optimized transportation.



**Alibaba** efficiently matches buyers and sellers in both online and brick-and-mortar channels.



**Airbus's Skywise** platform optimizes aircraft operations through deep usage, maintenance, and scheduling data.



**Nvidia's Drive Constellation** is a virtual driving environment that accelerates self-driving tests by a factor 1,000, slashing costs and time.



**Deere & Co.** optimizes farm production and yield by integrating machine, soil, and weather data in its MyJohnDeere platform.



**Adidas** offers fast, custom solutions for a wide range of tastes via 3D scans of customers and a fully digitized production chain.

Sources: BCG interviews and analysis.

## Strategic Position in a Digital and AI World

Any company's digital and AI journey will be defined by two dimensions: the importance of digital and AI for competitive advantage in the company's industry; and the digital and AI maturity of the company itself. Let's look at each of these in turn.

**Competitive Advantage.** In the *MIT Sloan Management Review* article, we showed that companies in all industries expect that digital and AI will transform both their offerings and processes over the next five years. The size of that impact depends on two factors:

- How important information is for the business

- How ready the company is to reap benefits from AI

Two examples illustrate the interplay of those two factors: mining and oil production; and media. Although mining and oil production will always require pulling physical assets out of the ground, digital and AI can dramatically improve the extraction and transformation process and resulting yield. (See “Machine Learning Magnifies Value,” *Mining Journal* article coauthored by BCG, November 2017.)

In other words, AI and digital are becoming a valuable complement, allowing robots and other autonomous machines to work in mines and wells. This is a particularly attractive option in remote and dangerous locations. Canada’s Suncor Energy, for example, has lowered its operating costs by relying on autonomous trucks at some of its sites.

Still, AI is not yet mature enough to automate all operational processes—and regulatory barriers remain. But within a few years, the mining and oil production industries will operate radically differently. As Equinor’s Folgerø says, “The core competency of an [energy] company will be different from what it is today.”

Media, on the other hand, has become almost fully digital, with physical assets, such as newspapers or CDs, increasingly irrelevant. Ad spending is following eyeballs onto digital platforms. Spending on digital ads, for example, will likely surpass spending on traditional ads by 2021. (See “Winning in Media in the Digital Era,” BCG article, February 2019.)

While the use of AI in content creation remains in early stages, the technology is rapidly changing the creative process. Background music, graphics, and basic finance and sports reports are all undergoing automation.

Executives need to analyze their company position, by industry, along the dimensions—the importance of information to the company and their readiness—from two directions: They should both extrapolate forward from the status quo to understand what they need to be doing over the next few years; and then retropolate, or project backward, from a bold future ambition to prepare for the medium term. (See “The Double Game of Digital Strategy,” BCG article, October 2015; “The Double Game of Digital Action,” BCG article, January 2016; and “The Double Game of Digital Management,” BCG article, July 2016.)

In conducting this double-game exercise, assume the perspective of digital attackers from adjacent industries: How would they disrupt an industry with new, data-enabled offerings, and how would they apply AI? Once the potential future is sketched out, executives need to assess the future of value pools within their industry. First movers can often capture significant value through automation and machine intelligence, as exemplified by well-known platforms such as Amazon, Airbnb, and Uber.

But AI-based models might not in themselves be the Holy Grail. Executives also need to watch out for signs that such machine intelligence is becoming readily available. That development could collapse one value pool and expand another, often involving a complementary product or service.

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“The core competency of a company will be different from what it is today.”

**Digital and AI Maturity.** The second dimension that defines a company’s journey is the relative maturity of a company in digital and AI within its industry. Typically this involves assessing two factors:

- IT and data infrastructure and systems, including access to high-quality and plentiful data and the structures and tools to take advantage of them
- People and processes, including the necessary skills but also the right approach to thrive in a man-and-machine world in which “AI first” will increasingly prevail

Several tools and yardsticks already exist. The [BCG Digital Acceleration Index](#) benchmarks companies on levels of digital engagement and maturity. An earlier *MIT Sloan Management Review* article coauthored by BCG lays out four maturity levels based on a company’s adoption and understanding of AI. (See “[Reshaping Business with Artificial Intelligence](#),” *MIT Sloan Management Review* article, September 2017.) Our colleagues at BCG Gamma, a data science unit, surveyed [employees’ familiarity with and enthusiasm for AI](#), essentially measuring the digital and AI maturity of the workforce.

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“ING’s 13 data and analytics environments require not only significant investments but also strong strategic alignment.”

Inspired by *The Economist’s* classic Big Mac Index, we devised yet another tool. *The Economist’s* index determines the purchasing power of currencies by comparing the cost of the famous hamburger sandwich in different countries. In our index, we calculate the share of data scientists in a company’s workforce to gauge maturity and predict performance. (See the sidebar “The Big Mac Index for the Digital Age.”)

Companies need to ensure that their data and processing infrastructure scales properly. This scaling is expensive but necessary. As Köseoğlu of ING says, “ING’s 13 data and analytics environments require not only significant investments but also strong strategic alignment.”

Companies also need to assess their ability to industrialize learning from data through intuitive machine-learning tools. Since continuously collecting data from the real world is both costly and slow, advanced companies are creating virtual environments to generate learning data and achieve cost and speed advantages. Engineering powerhouses, such as Equinor, are pursuing “digital twins” and other methods that can simulate engineering and operations (more on this later).

Finally, even in a world of machine intelligence, developing human talent remains critical, as does managing people and machines in the workplace. Besides overcoming resistance and fear, companies will need to reskill on a massive scale. Fabio Buckeridge, the chief digital officer of Braskem, said the company has invested heavily in both a new digital operating center as well as change management and governance initiatives.

Bringing those two dimensions together creates a matrix for companies that highlights their areas of strength and potential future strategies. (See Exhibit 3.)

**Stars.** Google, Amazon, and Facebook in the US and Alibaba, Baidu, and Tencent in China are all stars. They have the ability to make money from their unique access

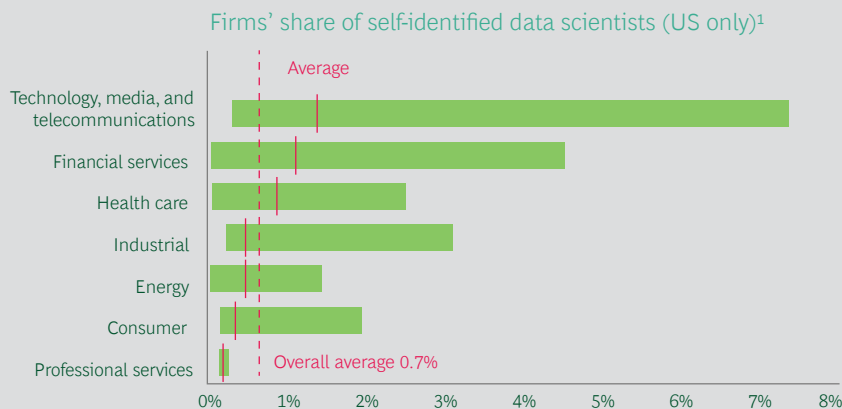
## THE BIG MAC INDEX FOR THE DIGITAL AGE

In a world in which data and AI become increasingly important, a company's ability to work with those two ingredients may serve as an early indicator of future success. Borrowing liberally from the concept of the Big Mac Index, we calculated the share of data scientists in a company's workforce to gauge its digital and AI maturity. We divide the number of employees who identify themselves on LinkedIn as data scientists by the total employees of that company listed on the job site. (This index obviously has a bias toward the US, LinkedIn's largest market, and self-identification may have also skewed the results.)

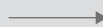
This index shows huge variation in the share of data scientists within both companies and industries. (See the exhibit.) In the US, companies averaged 0.7% data scientists as a share of their total domestic workforce, but the range within specific industries spans several percentage points.

One percentage point typically refers to *hundreds* of employees. That single percentage point matters. Regression analysis suggests that a one-point increase in the number of data scientists correlates with a two-point increase in EBIT margin, a finding that is controlled for industry and expressed with 95% confidence.

### MORE DATA SCIENTISTS MEAN HIGHER MARGINS



1 percentage point increase in data scientists (~200 on average)



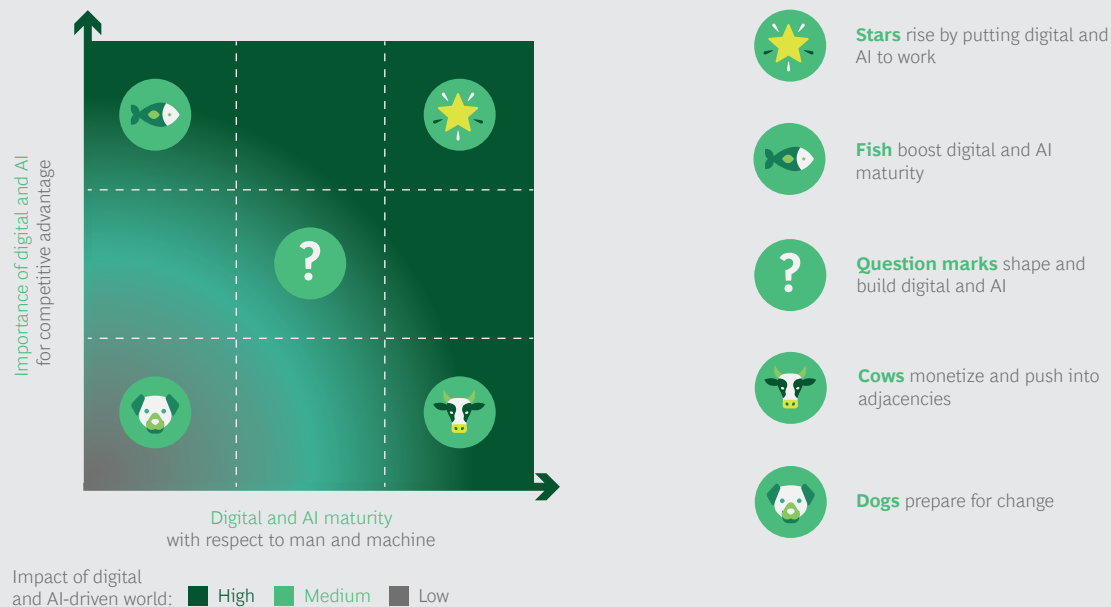
2 percentage point increase in margin<sup>2</sup> (significant to 5% level, R<sup>2</sup> of ~23%)

**Sources:** LinkedIn; CapIQ; Fortune 500; S&P Global; BCG interviews and analysis.

<sup>1</sup>Number of employees self-identified as data scientists on LinkedIn divided by total employees on LinkedIn. Sample includes top 350 Fortune 500 companies, excluding outlier Facebook, with their US employees.

<sup>2</sup>Multiple, linear regression analysis of EBIT margin change, controlled for industries, calculated between third quarter of 2016 and third quarter of 2018.

### EXHIBIT 3 | Strategies for a Digital and AI World



Sources: BCG interviews and analysis.

to data, their data infrastructure, and their people and processes. It's no wonder that they have become some of the most valuable companies worldwide. But their positions are not guaranteed. They are constantly balancing their desire to generate value from data with customer expectations about privacy and security. They also must understand the potential vulnerabilities in their business models to innovation and disruption.

**Fish.** These companies are weak in digital and AI in industries in which this maturity is important. Fish need to gain access to internal or external data and AI capabilities by any means necessary and improve their performance on as many of the 5Vs as possible (volume, velocity, variety, veracity, and value). If fish already possess a valuable data pond, they need to move aggressively in their application infrastructure, people, or processes.

**Cows.** The opposite of fish, these companies have strengths in digital and AI, but their industry or business model does not value it. Their mission should be to monetize their maturity in adjacent sectors, while shaping the future of their own industry.

**Dogs.** Digital and AI are not strong suits in these companies or in their industries, but that could change. Digital and AI are quickly gaining importance in traditional industries, so dogs need to be highly alert to ensure that they do not morph into fish.

**Questions Marks.** Many companies are stuck in the middle. They need to find opportunities in their industry to take advantage of digital and AI opportunities, while aggressively strengthening their maturity in these areas.

While access to real-world data is a critical component of digital and AI maturity, its importance will diminish, as mentioned earlier, thanks to the potential of virtual environments in which AI agents interact with one another. These interactions create data that the machines then process and learn from—an approach we call hyperlearning.

The best-known example is DeepMind’s AlphaZero. The machine received the rules of chess and played 300,000 games against itself. In just four hours, AlphaZero became the most proficient computer ever to play the game, winning through strategic superiority and human-like behavior without receiving real-world data.

While chess is a toy environment, both confined and fully transparent, many elements of this approach can be adapted to businesses. Nvidia, for example, has created a virtual reality simulator, called Drive Constellation, in which AI-controlled cars learn to drive alongside one another. This approach is much cheaper than equipping real cars with the sensors and equipment needed to drive on actual streets.

Researchers are also quickly building data sets using such approaches as generative adversarial networks and transfer learning. In the former, two complementary neural networks manage to generate new original works, such as images. In the latter, knowledge gained to solve one problem is applied to a related one, for instance from cars to trucks.

## Winning in the Age of Digital and AI

The stakes are rising. The changes in industry dynamics and boundaries will be transformative, even for advanced companies, requiring untapped resources and change management capabilities. To provide a more structured discussion, we distinguish three key elements of the journey to succeed. (See Exhibit 4.)

**Winning in the Medium Term.** Companies first should determine their position in the matrix presented in Exhibit 3 by understanding their industry’s evolution and conducting an honest appraisal of the company’s maturity. They then should sketch out a target state: What is their ambition in three to five years? What value pools will they pursue and through what business model? What are the distinctive features in their operating model, such as data assets and infrastructure and human-and-machine-optimized processes? How can they engage in both real and virtual learning, and what people skills and what structures do they need?

Based on this assessment and ambition, companies should then develop a rough roadmap that lays out milestones. They should pay special attention to resolving the AI paradox and focusing on unicorn opportunities—those with at least \$50 million to \$100 million in potential. “We start with a clear valuation for each use case and have a product owner on the business side,” said David Giblas, the data and digital officer at French insurer Malakoff Médéric Humanis. “The rule is to focus only on unicorns.”

**Funding the Journey.** Given the transformative nature of the effort, funding the journey is critical. How can companies free the human and financial resources to win? Agile ways of working are especially effective—and often overlooked. Agile

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The changes in industry dynamics and boundaries will be transformative, requiring untapped resources and change management capabilities.

EXHIBIT 4 | A Transformation Approach to Flip the Odds of Success

**Winning in the medium term**

- Assess the current position of digital and AI in the organization
- Define the target state of value pools and business model in three to five years
- Create a roadmap to develop “unicorns,” use cases with great potential



**Funding the journey**

- Define the funding needs, free up resources, focus on quick wins
- Embrace agile ways of working for speed and cost-efficiency
- Be willing to divest

**Building capabilities**

- Unify the entire organization around digital and AI with disciplined change management
- Train and hire digital talent
- Adjust the operating model to enable AI@scale

Sources: BCG interviews and analysis.

demands resources only as they are needed, so the upfront investments tend to be lower. Agile is also generally a less costly and faster way to work than traditional command-and-control approaches because more people are doing real work and fewer are simply coordinating. The early wins that agile generates are also critical for morale and momentum. ING’s Köseoğlu, confirms that without agile, the bank’s digital transformation so far would have taken much longer. Slaying sacred cows effectively frees resources, too. The neglected side of strategy is deciding what not to pursue, and such decisions can help train resources on the most promising approaches.

**Building Capabilities.** The entire organization needs to be unified around AI and digital initiatives. The DigitalLife@Daimler initiative, for example, helps the carmaker to coordinate its related work. In various markets, the carmaker devotes a day to promote and celebrate digital achievements. “Our CEO was present at every DigitalLife day,” says Harald Rudolph, the director of strategy. Likewise, at a recent annual meeting of top executives at Turkish conglomerate Koç, CEO Levent Çakıroğlu focused on successful recent projects, and they “all were related to data and analytics,” said Murad Ardaç, the digital transformation leader at the company.



At a high level, transformations require a committed leadership team, supportive culture and organization, the right talent, an outsized role for HR, and disciplined change management. Three areas deserve special attention:

- Massive reskilling of employees across the organization to become comfortable with the potential of AI.
- Capability building at the level of IT and machines so that the organization is able to execute fundamental AI strategies. Airbus, for example, has introduced self-service analytics and business intelligence stations on the shop floor and in various offices.
- Change management effort to address reskilling and capability building.

By bringing these elements together, transformations will be both effective and self-correcting. They will properly balance centralized and decentralized activity, embed data scientists in the right places in the organization, ensure effective collaboration in the IT, analytics, and business functions, and align overall business objectives.

**M**ANY COMPANIES HAVE embarked on large digital programs in recent years and have started to ramp up their AI initiatives. In most cases, they need to do more. With both digital and AI shaking the foundations of entire industries, fundamental strategic and operational questions have moved to center stage. Companies will no longer have separate digital and AI strategies. They will have corporate strategies deeply infused with both.

## About the Authors

**Philipp Gerbert** is a senior partner and managing director in Boston Consulting Group's Munich office. He is in charge of digital strategy globally, and he is a BCG Fellow, focusing on the impact of AI on business. You may contact him by email at [gerbert.philipp@bcg.com](mailto:gerbert.philipp@bcg.com).

**Jan-Hinnerk Mohr** is a principal in the firm's Berlin office. He is a former BCG Henderson Institute Ambassador exploring the impact of AI on business, and he is a core member of the firm's Technology, Media & Telecommunications practice. You may contact him by email at [mohr.jan@bcg.com](mailto:mohr.jan@bcg.com).

**Michael Spira** is a project leader in BCG's Munich office. He is a former BCG Henderson Institute Ambassador exploring the impact of AI on business, and he is a core member of BCG's Digital Accelerator System and the Energy practice. You may contact him by email at [spira.michael@bcg.com](mailto:spira.michael@bcg.com).

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## For Further Contact

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